

CLAIMS

1. A three-dimensional image display device for displaying a three-dimensional image by irradiating illuminating light at an optical wavefront control unit which records a control image, comprising:
- a control image optimizing unit configured to calculate three-dimensional images corresponding to a group of control images based on constraints inherent to the optical wavefront control unit, select a control image corresponding to the three-dimensional image satisfying a predetermined condition from the group of control images, and record the selected control image on the optical wavefront control unit.
2. The three-dimensional image display device as set forth in claim 1, wherein the control image optimizing unit is configured to generate the group of control images by sequentially performing change processing on part of the control image, and sequentially calculate the three-dimensional images based on difference information about the control images before and after the change processing.
3. The three-dimensional image display device as set forth in claim 1, wherein the control image optimizing unit is configured to calculate the three-dimensional image in a region to be calculated defined by the constraints.
4. The three-dimensional image display device as set forth in claim 3, wherein:

the control image is constituted by phase distribution of an optical wavefront; and

the control image optimizing unit is configured to calculate the region to be calculated, based on a range in which
5 phase modulation is possible on a display device constituting the optical wavefront control unit, and accuracy of the phase modulation.

5. The three-dimensional image display device as set forth
10 in claim 4, wherein the control image optimizing unit is configured to calculate the region to be calculated, also taking account of amplitude modulation which occurs with the phase modulation.

15 6. The three-dimensional image display device as set forth in claim 3, wherein:

the control image is constituted by amplitude distribution of an optical wavefront; and

the control image optimizing unit is configured to
20 calculate the region to be calculated, based on a range in which amplitude modulation is possible on a display device constituting the optical wavefront control unit, and accuracy of the amplitude modulation.

25 7. The three-dimensional image display device as set forth in claim 6, wherein the control image optimizing unit is configured to calculate the region to be calculated, also taking account of phase modulation which occurs with the amplitude modulation.

8. A three-dimensional image display method for displaying
a three-dimensional image by irradiating illuminating light at
an optical wavefront control unit which records a control image,
5 comprising the steps of:

calculating three-dimensional images corresponding to a
group of control images based on constraints inherent to the
optical wavefront control unit;

selecting a control image corresponding to the
10 three-dimensional image satisfying a predetermined condition
from the group of control images; and

displaying the selected control image on the optical
wavefront control unit.